

# Introducing the AMD M690T and AMD M690E chipsets for embedded designs

## AN EXCELLENT COMPANION FOR LOW-POWER AMD64 EMBEDDED PROCESSORS



The AMD M690T/E chipset gives embedded system designers a new option when using the leading-edge AMD64 embedded processor technology. The complete AMD solution offers a stable and reliable commercial embedded computing platform, with superior graphics, enhanced video performance, and numerous display options — key capabilities for next-generation thin-client, point-of-sale, and gaming systems. This enhanced visual capability is also well suited for AMD64 technology-based medical or security imaging and broad-purpose single board computing.

In line with AMD's core embedded processor offerings, the AMD M690T/E chipset supports a low-power, high performance, small form factor system. This combination of low power/high performance, coupled with the ease of designing systems based on AMD64 and HyperTransport™ technology, can help enable innovative solutions that go to market quicker and offer your end customers ongoing reliability and low total cost of ownership.

### With a wealth of unique features for embedded designs, the AMD M690T/E chipset:

- Delivers a Microsoft® Windows Vista® Premium experience, handling the rich Aero user interface and extremely demanding application workloads with ease
- Offers modest power consumption
- Average power consumption of 3W or less while decoding multimedia or intense 3D graphics\*
- Supports a small footprint design
- Features multiple options for 2D, 3D, and motion video acceleration; displays; DVI/HDMI; and Universal Connectivity
- Enables high application performance with HyperTransport technology interface
- Supports the stability and reliability vital to embedded solutions

### Supports the leading-edge technology of these AMD64 Embedded families:

- AMD Athlon™ 64 X2 dual-core processors
- AMD Athlon 64 processors
- AMD Turion™ 64 X2 Dual-Core Mobile Technology
- AMD Turion 64 Mobile Technology
- Mobile AMD Sempron™ processors

### A great chipset solution for:

- Thin clients
- Point-of-sale (POS) systems
- Gaming machines
- Medical and security imaging
- Single Board Computing (SBC)

Learn more about AMD's full range of embedded solutions at [www.amd.com/embedded](http://www.amd.com/embedded)

\* With LVDS display at 1400 X 1050, 32bpp, 60Hz.

## TECHNOLOGY FEATURES

### CPU Interface

- AMD Athlon™ 64 X2 dual-core and AMD Athlon 64 processors
- AMD Turion™ 64 X2 Dual-Core and AMD Turion 64 Mobile Technology
- Mobile AMD Sempron™ processors
- 1GHz HyperTransport™ interface speeds

### PCI Express® Interface

- Compliant with the PCI Express® 1.1a specifications
- Up to 4x1 PCI Express general purpose links
- 1x8 PCIe® graphics interface

### 2D Acceleration Features

- Highly optimized 128-bit engine, capable of processing multiple pixels per clock
- Supports a maximum resolution of 2560 x 1600
- Game acceleration including support for Microsoft's DirectX

### 3D Acceleration Features

- Full DirectX 9.0 support
- 3D texture support, including projective 3D textures
- Anti-aliasing using multi-sampling algorithm with support for two, four, and six samples
- New generation rendering engine provides outstanding 3D performance
- Support for OpenGL format for Indirect Vertices in Vertex Walker

### Motion Video Acceleration Features

- MPEG2 (MP@ML) hardware standard definition decode acceleration support — IDCT and motion compensation using Microsoft® DXVA API
- WMV9 hardware standard definition decode acceleration support — using Microsoft DXVA API
- Hardware up/down scaling of video
- True 10-bit color processing renders up to 1.07 billion colors
- Automatic Gain Control for the right brightness balance through ATI Avivo™ technology
- 3D comb filtering to minimize color bleeding through ATI Avivo™ technology
- Video post-processing hardware for deinterlacing, bob, clipping, and padding
- 3:2 pull-down for conversion of video to film

### Multiple Display Features

- Dual independent displays
- Resolution, refresh rates, and display data can be completely independent for the two display paths
- Supports both interlaced and non-interlaced displays
- Integrated HD audio controller for HDMI audio data
- Supports additional external digital and analog displays via DVO port

### DVI/HDMI

- Supports a TMDS interface, enabling DVI or HDMI 1.2
- HDCP 1.1 support on data stream with on-chip key storage
- 1650 Mbps/channel with 165MHz pixel clock rate per link
- Two TMDS outputs with independent content and resolutions (M690E only)

### Universal Connectivity

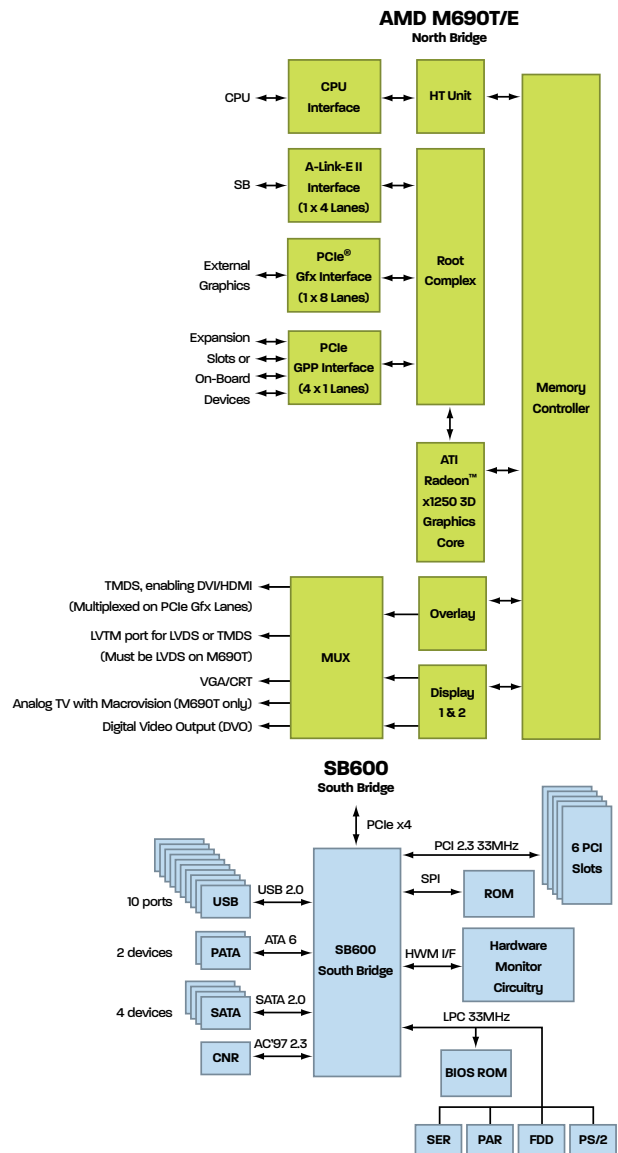
- 10 USB 2.0 ports
- Supports SATA II 3.0Gbit/s PHY
- Four-port SATA AHCI controller supports NCQ and slumber modes
- ATA 133 controller support up to UDMA mode six with two drives (disk or optical)
- TPM 1.1 and 1.2 compliant
- ASF 2.0 support for manageability control
- UAA (Universal Audio Architecture) support for high-definition audio
- PCI v2.3 (up to six slots)
- LPC (Low Pin Count), SPI (New Flash Bus), and SM (System Management) bus management

### Packaging/Power

- 465-ball FCBGA package
- 21mm x 21mm
- Average Power: 3W with M690T driving LVDS out at 1400 x 1050, 32 bpp, 60 Hz

### Ordering Part Numbers and Markings

- M690T OPN#: 100-CG1292
- M690T Part Marking: 216-TQA6A12FG
- M690E OPN#: 100-CG1408
- M690E Part Marking: 216-EVA6CVA12FG



For more information, please visit [www.amd.com/embedded](http://www.amd.com/embedded)

### About AMD

AMD (NYSE:AMD) designs and produces innovative microprocessors and low-power processor solutions for the computer, communications, and consumer electronics industries. AMD is dedicated to delivering standards-based, customer-focused solutions for technology users, ranging from enterprises and governments to individual consumers.

### Technical support

USA & Canada: 800-222-9323, option 2,  
or 408-749-5703

USA & Canada PC processors only:  
408-749-3060

USA & Canada e-mail: [hw.support@amd.com](mailto:hw.support@amd.com)

Latin America e-mail (Spanish):

[amdsp@vermont.com.br](mailto:amdsp@vermont.com.br)

Latin America e-mail (Portuguese):

[amdbp@vermont.com.br](mailto:amdbp@vermont.com.br)

Argentina: 0800-333-0219

Brazil: 0800-557686

Chile: 123-00-209-110

Mexico: 01-800-123-4709

Europe & UK: +44-0-1276-803299

Europe & UK fax: +44-0-1276-803298

France: 0800-908-621

Germany: +49-89-450-53199

Italy: 800-877224

Europe e-mail: [euro.tech@amd.com](mailto:euro.tech@amd.com)

China fax: 86-10-8518-1777

Hong Kong fax: 852-2956-0588

Japan fax: 81-3-3346-7848

Korea fax: 82-2-3468-2601

Taiwan fax: 886-2-2655-7855

Asia e-mail: [asia.support@amd.com](mailto:asia.support@amd.com)

### Literature ordering

On the Web:

[www.amd.com/support/literature.html](http://www.amd.com/support/literature.html)

USA & Canada: 800-222-9323, Opt 1

USA & Canada e-mail:

[amdliterature@comac.com](mailto:amdliterature@comac.com)

Europe e-mail: [euro.lit@amd.com](mailto:euro.lit@amd.com)

China fax: 86-10-8518-1777

Hong Kong fax: 852-2956-0588

Japan fax: 81-3-3346-7848

Taiwan fax: 886-2-2655-7855